

Updates of MDL Objective Analyses of Observations and Forecasts: Current and Planned Implementations of Localized Aviation MOS Products

Jung-Sun Im, NOAA/NWS, Silver Spring, MD; and B. Glahn

As part of the Localized Aviation MOS Program (LAMP), the Meteorological Development Laboratory (MDL) has been providing gridded observations (0-h projection) and gridded LAMP forecast guidance (1-25-h projections) for 2-m surface temperature (T), 2-m dewpoint temperature (Td), ceiling height (C), and visibility (V) since September 2010. This gridded LAMP (GLMP) suite, run experimentally in the National Weather Service (NWS) parallel jobstream at the National Centers for Environmental Prediction (NCEP), was transitioned to an operational product at NCEP Central Operations in December 2012. The operational GLMP guidance suite is available every hour on a 2.5-km grid over the conterminous United States (CONUS) in the National Digital Guidance Database (NDGD).

In this presentation, we will describe the analysis method currently used to provide products for NDGD and new methods developed to improve the existing products. Newly developed GLMP suites for opaque sky cover (S), probability products of C/V/S, and 10-m wind products (W) which are scheduled to be implemented in 2014 and 2015 will be described. The weaknesses, strengths, challenges, and areas that need to be improved for each gridded weather element product will be discussed. This presentation will focus on improvements over current operational LAMP T/Td/C/V gridded products, improvements of temporal consistencies between gridded observations (0-h projection) and the first projection (1-h) of gridded LAMP forecasts, and the addition of new GLMP S and W products. The methods of temporal, spatial, and inter-element consistency checks will be explained.

The hourly issued GLMP suites covering 0-25-h projections provide nowcasts and forecasts in a timely manner. These are available not later than 45 minutes after the top of the hour. The objective analysis scheme of the GLMP suites does not heavily rely on the first guess fields, but strongly relies on observations at the 0-h projection and LAMP station forecasts for the 1-25-h projections. To supplement LAMP station forecasts in the GLMP W suite, for example, current-hour observations and the Global Forecast System (GFS) model based MOS forecasts are used, both adjusted with LAMP forecasts and weighted by projection. Gridpoint adjustments consider expected local change with elevation computed from surface and GFS upper level data. The analysis product suite will be enhanced to include other weather elements and will be extended to Alaska and Hawaii.